REVIEW of DENTISTRY for CHILDREN

PUBLISHED BY THE AMERICAN SOCIETY FOR
THE PROMOTION OF DENTISTRY FOR CHILDREN

Vol. VI FIRST QUARTER 1939

CONTENTS

A.S.P.D.C. COMMUNICATIONS—

1939 A.S.P.D.C. Responsibilities and Objectives 2
JOHN C. BRAUER, *President*

The St. Louis Meeting 11
Annual Reports of Officers and Committees

State Units 14

From the Secretary 16

Techniques 17

ARTICLES—

Face Growth and Face Value 3
WILTON MARION KROGMAN

Foundation Teeth: A New Name for the Deciduous Dentition 6
JOSEPH H. KAUFFMANN

Ammoniacal Silver Nitrate as a Sterilizing Agent for Deep-Seated Decay in Deciduous Teeth—RALPH L. IRELAND 8

Infiltration Anesthesia 18
N. H. TAYLOR

What Price Deciduous Teeth, Chapter IV 21
JOHN E. GURLEY

Dental Health Education 23
M. L. MCCONNELL

Responsibilities and Objectives of the American Society for the Promotion of Dentistry for Children During 1939

John C. Brauer, *President*

Some 600 strong is the boast of the American Society for the Promotion of Dentistry for Children, and these members in most instances are the leaders in their respective state dental societies. No other organization can be compared with the A.S.P.D.C. in enthusiasm and accomplishments during the past ten years. It is indeed an inspiration and a privilege to note the pulse and spirit of the members and committees at work during the year.

There are several very important committee assignments made for this year. The College Curriculum Committee is of particular significance in that certain fundamental minimal requirements for teaching must be set-up to guide the future of dentistry for children. This action is being precipitated by the chain of events all over the nation. The government through its several agencies of health is directly interested in promoting and developing a greater service for the child. The major effort is being directed through the state departments of health at the present writing and will be carried further in the coming legislature to include lay participation.

Another development is that of a National Specialties Board in dentistry, just as they now have in medicine. It will be the objective of this board to organize, correlate, and to make suggestions to the various specialties in teaching and practice. Such a board will be of major importance in the standardization of accepted principles within the specialty. *What are the standards in pedodontics,* in the teaching of undergraduate, post-graduate, and graduate work? It is very necessary that the leaders in dentistry for children set up certain minimal requirements in the field of teaching.

Thanks to the dental state boards, who have had a keen interest in the progress of dentistry and who have examined candidates in the field of pedodontics. There is no group or organization who can do more for the future of dentistry for children than the American Association of Dental Examiners and the National Board of Dental Examiners.

The College Curriculum Committee, as well as the several other committees, hereby has a challenge, as does every member of our A.S.P.D.C.

Face Growth and Face Value

Wilton Marion Krogman,
Laboratories of Anatomy and Physical Anthropology
University of Chicago

It is a far cry from the statement of Vesalius that the skeleton is merely a framework, subserving the same function as "walls and beams in houses and poles in tents," to the observation of Broadbent that "the face in its internal form and structure contains in a chronological sequence a detailed record of the individual's development growth progress from birth to maturity."

One of the first questions which we may well ask ourselves is why study facial growth? I answered this question for myself some time ago with a one-word statement of what is at once a purpose, an aim, and a goal—*symmetry!*

I should have to extend my definition, of course, and then I should add that the symmetry must be functional and it must be esthetic—to "work right" and to "look right." Immediately, the problem of the creation of a standard of "rightness" presents itself. Is this standard determined by the majority? Can it be applied to specific cases, and if so, how are we to judge the presence or absence of this standard in individual instances? The problem resolves itself, I think, into a question of the normal versus the abnormal—the "right" versus the "not right."

Now, I do not pretend to know exactly what the normal is. Yet the term is used whenever one wishes to imply the idea of rightness, of harmony, of symmetry. The normal is, I think, the mental summation of the frequency of observed conditions: it becomes, in a sense, the usual. By a similar process, deviation from the usual becomes the abnormal.

The concept of the normal thus introduces to *interpretations*—aesthetic, etiologic, functional—*methods*—experimental, comparative, biometric—and an *objective*—the potential or optimum. This is, literally, the set-up in all our work. Now let's get down to fundamentals: what is growth? Basically, the concept of growth embraces two major ideas: first, growth as a general biologic process; second, the form resulting from the operation or natural working-out of that process. Of the first we know relatively little. We can, to be sure, apparently modify the process experimentally, yet we recognize little else but the end-result of the supposed modification; the deep-lying causes are lost to us. It is for the biochemist and biophysicist to answer this phase of our problems.

The second aspect of the growth concept is more amenable to analysis: we attempt to ascertain changes in size, structure, proportion, and composition, not only with respect to the ultimate form achieved, but, more important, with reference to the "way-stations," i.e., the growth stages, involved. So we come quite logically to an interpretation of growth as in three phases: increase in dimensions, change in proportions, and adjustment of parts. For Todd the first is

growth, the second and third development, land *all* three are developmental growth. It is the harmonious interplay of the three phases or factors that we are interested in.

When does this interest begin? prenatally? at birth? pre-school child? school child? juvenile? adolescent? adult? As a matter of fact it begins with conception, ends with death.

As a general rule the rate of growth in facial height, width, and depth is fairly uniform in the five-to-twelve interval, gradually decelerating until by the age of fifteen a balance is reached. The 5% of growth remaining is quite evenly distributed. The relatively late lower facial height (mandibular) growth is of note; it may be a sex-linked factor, more emphasized in males. Almost certainly it is respiratory growth.

Todd has stated that "growth of the face comprises increase in dimension, unequal in extent and nonsynchronous in time" and that "this means endless adjustment in the skeleton of face and cranium." With this we can heartily agree, with the reservation that the inequalities are far more noticeable in the first five years than in the later years. With reduced rate comes smaller increments, actually and relatively, and, since the motion of growth is slowed up, the discrepancies—the "ugly duckling" stages—are apt to be less marked.

The inequalities of facial growth are not alone incremental; they are regional, inherent in the very nature of cranio-facial relationships. We have already, in quoting dimensions from Hellman and Goldstein, tacitly accepted the three great avenues of facial growth: height, width, depth. But each of these major divisions may be further subdivided. Gain in *height* is in the upper face, the palato-alveolar area (including the teeth), and the mandibular area. Gain in *width* is in the mid-line (orbito-nasal) and bizygomatic and bigonial. Gain in *depth* is localized in the facial skeleton itself and in the forward drift of the mask which occurs in cranio-facial expansion. Add to these incremental phenomena those of positional adjustment and angular change and the picture becomes immensely complicated. It is no wonder, when a "normal" pattern must be a balance of diverse and complex elements, that combinations occur from time to time that demand remedial attention.

So much for the physical element. How about the temporal? Hellman recognizes three periods: (1) birth to seven years, with appearance of the deciduous teeth, eruption of the first permanent molar, and major growth in an antero-posterior (depth) direction; (2) seven to fifteen years, with eruption of all permanent teeth up to and including the second molar, and major growth in height and width; (3) fifteen to twenty-one years, with completion of the permanent dentition, and residual growth in height and width, most marked in males. Broadbent also recognizes three periods: (1) birth to six years, in which 50% of adult width is achieved; (2) six to twelve years, with vertical growth greatly emphasized and anterior growth at a minimum; (3) twelve to twenty years, with a spurt in antero-posterior growth and gain in width exceeding gain in height.

Growth in width and depth precedes eruptional changes, growth in height follows eruption. As m2, M1, M2, M3 appear there is a forward adjustment of the entire face.

If we pause to consider rates and increments of growth, areas of growth, times of growth, we may the more readily understand Hellman's conclusion that "the growth of the face is apparently not dependent upon the effect of orthodontic treatment, but the success of orthodontic treatment may be dependent upon the effect of growth." Dentistry in children cannot be a forcing agent; it must be guiding, must be directing, must be natural.

We come now to a consideration of some of the activating factors which may guide the face in its development career. One of the most obvious factors is that of the general constitutional welfare of the child, a theme so well elaborated by Todd and his associates that detail is unnecessary here. One quotation from Todd will suffice: "In infancy, when the constitution is most susceptible to disturbance, it is the face rather than any other part of the body which registers permanent damage through interruption of facial growth, a damage which shows little tendency to repair and is forever afterwards merely compensated by structural modification." This constitutional impairment may be, and generally is, reflected in the skeletal development of the child. As a result not only are growth increments reduced or inhibited, but efforts at restorative treatment are frustrated. The demineralized bones of the jaws, already deficient in normal size, are unable to retain corrective impulses transmitted to them by appliances. Goldstein and Stanton give ample proof of this in their thorough studies of tooth movement, for it is precisely in jaws already maloccluded by virtue of unequal growth that individual adjustment in position is the most haphazard.

Still another phase of constitutional inadequacy is to be found in large, flashy adenoid masses and congested turbinates, structures which may interfere with the freedom of the respiratory passages but do not necessarily disturb the growth pattern. It is only when the impeded nasopharyngeal passages lead to improper mouth habits that corrective dentistry need enter.

This is not, however, the entire picture, for nasopharyngeal disturbances are often attributable to a fundamental imbalance in craniofacial relationship—i.e., an inadequate forward drift of the mask to *open up* nasopharynx. The work of Rosenberger has demonstrated the importance of this forward growth in the early years when he concludes that "already by the age of five years the pattern of upper facial development is established. Defects of growth originate, therefore, in early childhood . . ."

With the theme of constitutional well-being or inadequacy we are introduced to a number of factors: the endocrine system, the vitamines, the dietetic balance, the socio-economic environment, the roles of heredity and evolution. Each of these—or all working together harmoniously—is of equal importance, and for each a balance must be struck in individual cases.

Foundation Teeth: A New Name for the Deciduous Dentition*

Joseph H. Kauffmann,
New York

"Dental Health for American Youth!" No doctor worthy of the name can fail to be thrilled by that declaration so short and yet so stirring in its mighty implications. If ever the American Dental Association pledges itself to an outstandingly progressive ideal, this is it. Synchronous with the task involved in carrying out that laudable objective are all those measures which will aid the public to appreciate the vital importance of preventive dentistry for children. Accordingly, we deem it particularly fitting at this time to place before the Section on Children's Dentistry and Oral Hygiene the proposal that the term foundation teeth be approved as a new name for the deciduous dentition. Popular enlightenment can do no harm and must have an eventual beneficial effect. If it is true that too many dentists are failing in their responsibilities to children, then the solution is not to inhibit the education of the public but to educate similarly and simultaneously the delinquent members of the dental profession.

Looking back, we find that at the turn of the century most parents and most dentists paid little attention to the young child's teeth. Early mouth hygiene activities did not accentuate the importance of the deciduous dentition, and it was casually taken for granted that the first set of teeth were not to be neglected and not to be worried about too much, either. A passive attitude prevailed on the part of both dentist and layman. The beginning of a change for the better became noticeable at the end of the Great War in the shape of concentration on child welfare as a compensatory humanitarian movement to offset the misfortunes of the preceding destructive years and to appease the conscience of warring mankind. Every act in behalf of child welfare is a tribute to the finer instincts of civilization.

The principal reason for the long-standing neglect of the deciduous dentition is the fact that the layman looks upon the first set of teeth as unimportant because of their transient position in the mouth. Mother says, "Why bother, they'll come out anyhow." Parents think of these teeth as merely temporary, a word which adds insult to injury as far as deserved attention to the primary dentition is concerned. The names temporary teeth, baby teeth, milk teeth, first teeth, have a decidedly negative effect in creating a proper mental attitude toward the necessary care of the pre-school child's mouth. If one inspects the changing viewpoint of our profession toward the much neglected primary dentition, he finds that the desire to commence very early in a program of dental health care for children—that is, as near to two years of age as possible, brings into bold contrast the inhibitions produced by the names temporary, baby, milk, and first teeth. These terms will always have a detrimental psychological influence upon the lay mind. The thing to do is to find a way to eradicate that influence, and we therefore

Eightieth Annual Session of the American Dental Association, St. Louis, Mo., Oct. 25, 1938.
*Abstracted from a paper read before the Section on Children's Dentistry and Oral Hygiene.

propose the name of foundation teeth for the deciduous dentition.

Referring to Webster's Collegiate Dictionary, third edition, we find six meanings given to the word foundation. We have selected as the one most appropriate for our purpose the following "That on which anything is founded; groundwork." This definition has been chosen because it best illustrates the educational value of the word foundation in guiding the mind of the layman to the concept of important relationship between the first and second set of teeth. The name foundation teeth psychologically stimulates the thought of building securely for adult life if the groundwork is prepared in a sound manner. In other words, a healthy first set leads to a healthy second set of teeth.

The word foundation conveys an emphatic and concise impact to the ear and mind because it definitely arouses the idea of substantiality. There is no name now in use by the layman which carries the same power of conviction. You may test this to your own satisfaction by saying the word foundation aloud for a few times in a distinct manner. One gets a reaction to its use which is like that produced upon our finer sensibilities by a man or woman of character; you feel that it represents something worthwhile. As a matter of fact, in a world of many words, the word foundation possesses a personality all its own. It has a real meaning; there it is, all in one and one in all. Say it and you have said everything. If there is any regret attached to our introduction of the new name foundation teeth, it is that we did not think of it long ago. Being new, it will stimulate the receptive mind to inquire into what it represents; being sensibly explainable in terms of fundamental relationship between first and second dentitions, its message will be intelligently appreciated by any reasonably minded child or adult; and having a driving force peculiar to itself, far greater than that of any other name now in common use, its larger educational purpose will be practically achieved by the impetus its popular adoption will give to the universal recognition of the unquestionable importance of the deciduous dentition.

In the September, 1938, issue of *The Journal of Heredity* Hodge and Finn discuss "Hereditary Opalescent Dentin" from the findings obtained during study of three unrelated families. From the geneologies: ". . . It can be seen that the defect behaves as a typical dominant characteristic and does not show any sex linkage. Individuals who possess the defect mated with normals transmit the defect to approximately half their children." The authors found a difference in the intensity of the pathology in different mouths. They believe this indicates that the inheritance is not a simple one, but that there are quantitative modifying factors.

The subjects of the study, except for the anomaly of the teeth, were normal upon physical examination. The only consistently abnormal clinical finding was high values for the plasma phosphatase in the children. This finding the authors believe may be attributed to an independent genetic factor. Oral clinical findings, microscopic structure, and chemical and physical properties of the teeth in these subjects are presented in detail.

Ammoniacal Silver Nitrate as a Sterilizing Agent for Deep-Seated Decay in Deciduous Teeth

Ralph L. Ireland
Lincoln, Nebraska

In spite of the fact that ammoniacal silver nitrate was introduced twenty-one years ago and that many dentists have obtained and are still obtaining gratifying results from its use in the sterilization of deep-seated decay, many men are still skeptical. This is especially true with regard to its use in deciduous teeth. Some have simply taken the stand that the use of this medicament in deciduous teeth requires further investigation before it can be accepted. Others have perhaps been deterred from using this solution by the mistaken belief that the solution would proceed unchecked until it had reached the pulp, causing devitalization of the tooth.

Because of the more or less uncertain results following pulp capping and partial pulpectomy and the skepticism existing with regard to the use of ammoniacal silver nitrate in deciduous teeth, an analysis was made of one hundred cases treated in the clinic of the College of Dentistry at the University of Nebraska. Practically all of the teeth selected and treated for this study were classified as having deep carious areas in close proximity to the pulp chambers. Most of the teeth were deciduous, the few exceptions being permanent molars in children from twelve to fourteen years of age. All of the teeth treated and included in this analysis were under observation for a period of from ten to fourteen months.

Ampoules of ammoniacal silver nitrate prepared according to the directions of Percy R. Howe by the P. H. Condit Company were used, and eugenol was employed as the reducing agent.

The following procedure was carried out for each tooth treated. After examining the child's mouth, all teeth suspected of having carious areas of sufficient depth to be included in this study were radiographed. If the radiogram verified our suspicions, the following data were recorded on an especially prepared chart: The date, patient's name, age, and sex. The tooth or teeth to be treated were listed with a short history of the case. Vitality tests were made with ice and the electric tester. The response to the ice test was recorded as good, fair, or slow. In listing the response to the electric tester, the number used was the one appearing on the scale of the tester at the time the current was first felt. Great care was exercised in making all electrical vitality tests. The tooth was covered with toothpaste in order to insure sufficient moisture, and firm pressure was exerted on the electrodes to insure contact. Tests were made on various surfaces of the tooth, and these points of contact were recorded so that future tests could be made at approximately the same places. After the tooth had been tested, the response was compared with corresponding teeth in the same mouth. All of the soft decayed material was then removed with a large round bur. No attempt at cavity preparation was made at this time. The tooth was next isolated by means of cotton rolls, the cavity

thoroughly dried, and ammoniacal silver nitrate and eugenol were applied to the remaining infected dentin. First, a small sterile cotton pellet was saturated with the silver nitrate solution, placed into the cavity, and held tightly against the dentin by means of cotton pliers. The silver nitrate solution was allowed to remain in the cavity for periods varying from forty-five seconds to two minutes, the time for each case being recorded. This procedure was followed by the application of eugenol in a similar manner, the time of contact being recorded. While these two solutions were being applied, the child was continually questioned as to whether he felt any pain. After the eugenol had been applied, any excess was removed and the cavity was filled with cement. The parent was instructed to bring the child back in from four to six weeks, and at that time, if no complications had occurred, a permanent filling was placed in the tooth.

When the child returned, he, as well as the parent, was questioned as to whether any pain or discomfort had been experienced. The tooth was again tested with ice and the electric pulp tester, and another roentgenogram was made. If everything was found to be satisfactory, the tooth was isolated with cotton rolls and the cavity was prepared. A small portion of the previously deposited cement was left in the base of the cavity, over which was placed a silver amalgam restoration. All parents were requested to bring the children back at two or three month intervals for the purpose of making additional vitality tests and roentgenographic examinations. Some of the cases were rechecked as many as six times, and all were checked at least three times after the two solutions were applied.

The first objective of this investigation was to ascertain whether the use of this medicament as a sterilizing agent for these cases would result in the devitalization of the tooth. The results of the experiment have been most gratifying. All of the one hundred cases selected and treated are, according to pulp tests (ice and electrical), still vital, and follow-up roentgenograms have revealed no infection. To date it has not been necessary to extract any of the teeth because of pulpal involvement. The very close proximity of the decay to the pulp chambers of many of these teeth discloses the fact that the pulps of the deciduous teeth are more resistant to external stimuli than was previously thought. It has been stated by some dentists that if this solution were applied to infected areas extending close to the pulp, the result would be a severe toothache. This was not the case with most of the teeth which we treated. Two of the children noticed a little pain, but in the rest of the cases no discomfort or pain was experienced during or following the application.

The second objective was to determine whether the ammoniacal silver nitrate would penetrate to the base of the infected dentin left in the cavity, sterilize the dentin, and prevent it from further progress. As to the penetrating power of this silver solution, hundreds of deciduous teeth were examined in which ammoniacal silver nitrate was precipitated. All showed that apparently the solution had penetrated to the deepest part of the decayed area. In order to be more certain that

such was the case, over fifty ground sections were prepared from teeth in which the ammoniacal silver nitrate was precipitated before extractions. Others were prepared in which it was precipitated immediately after. Microscopic examination of these sections revealed that the penetration extended even beyond the primary area to the end of the dentinal tubules which had been affected in advance of the process of decay. These sections also showed that penetration stopped when sound dentin was reached. Such stoppage was, of course, bound to occur because silver nitrate is a superficial coagulant. When it reaches the protoplasm of normal dentin, coagulation results, and further penetration is automatically prevented. In the experiments to date, the reduced ammoniacal silver nitrate has been successful in sterilizing the infected dentin left in these teeth. There is no doubt that without the intervention of this solution decay would have progressed, involving the pulps long before now.

The third objective was to ascertain how close to the pulp chamber of deciduous teeth ammoniacal silver could be used without endangering the vitality of the tooth. It was found that this solution can be used safely in all deciduous teeth with deep-seated decay, provided there is a small area of sound dentin between the decay and the pulp chamber. The extent of this area can be learned in the majority of cases by roentgenographic examination. When taking roentgenograms for this purpose, extreme care must be exercised to secure correct angulation, because a slight variation may indicate that the decay is closer to the pulp than it actually is. Several exposures from different angles may be necessary before a final decision as to the extent of the decay can be reached. On the diagnosis made from these radiographs hinges the success or failure of this treatment; therefore, the importance of correct angulation cannot be stressed too emphatically. If the radiogram reveals that decay has progressed to the pulp, the use of ammoniacal silver nitrate is contra-indicated. On the other hand, if it shows that decay has not reached the pulp and that there is a thin layer of sound dentin surrounding the pulp, ammoniacal silver nitrate is indicated.

The fourth and final objective was to learn whether there is any correlation between the length of time taken to apply the solution and the degree of penetration. Some of the teeth were treated with ammoniacal silver nitrate for one minute and with eugenol for two minutes, whereas with others the procedure was reversed with no observable difference in the clinical results. The shortest time for the application of either solution was forty-five seconds. Similar tests were also made on other deciduous teeth just before they were extracted, after which ground sections were prepared. The same depth of penetration resulted when the two solutions were applied for one minute as in those cases where it was applied for two minutes. It was found, however, that for sufficient penetration and complete reduction each solution should be applied for at least one minute.

THE ST. LOUIS MEETING

One of the finest programs in A.S.P.D.C. history was presented to those who made the trip to St. Louis for the twelfth annual convention. The Local Arrangements Committee did a masterful job in arranging the meeting in the spacious and beautiful Hotel Jefferson.

The meeting was opened by President Hogeboom, after which Dr. J. M. Clayton, President of the Missouri Unit, welcomed the members to St. Louis.

The program for the day was outlined by Dr. O. W. Brandhorst, Chairman of the Local Arrangements Committee. A vote of appreciation was extended to Doctor Brandhorst and the other members of the Local Arrangements Committee for their work.

The President's report was read by Dr. Floyde E. Hogeboom and accepted. Doctor Hogeboom then called upon Doctor Brandhorst, who explained "Youth Lane" and its purpose. Doctors Hogeboom and McFall told of the General Session meeting Thursday night and urged everyone to be present.

The following Officers' and Committee reports were read and filed:

Secretary's report . . . . . Dr. Ralph L. Ireland
Treasurer's report . . . . . Dr. Konrad Lux

The Treasurer's report was referred to the Auditing Committee: Doctors Howard Burkart, T. C. Casto, and Frank Lamons.

Membership and State Units Committee report . Dr. John C. Brauer
Editorial Board's report . . . . . Dr. Kenneth R. Gibson
Editor's report . . . . . Dr. Samuel D. Harris
School Dental Program Committee's report . . Dr. J. M. Wisan
Bibliography Committee's report . . . Dr. J. H. Kauffmann
State and National Board of Dental Examiners
Committee report . . . . . Dr. Ralph L. Ireland
Constitution and By-Laws Committee Report . Dr. Frank Lamons

The annual luncheon was held in the Crystal Room. Dr. C. Willard Camalier, President of the A.D.A., extended greetings to the Society and wished the A.S.P.D.C. a most successful meeting. After luncheon, Dr. Jack Wisan read the report of the Nominating Committee and placed the names in nomination for officers and memberships on the Executive Council for the coming year. There were no other nominations from the floor, and it was moved by Dr. J. Walter Ford, seconded by Dr. Walter McBride, that the Secretary be instructed to cast a unanimous vote for the officers named. The President, Doctor Hogeboom, inducted the new officers into office by calling them to the front in a body and after a few remarks introduced them to the Society. Dr. William R. Davis introduced the luncheon speaker, Dr. William DeKleine, M.D., Medical Advisor to the American Red Cross. Doctor DeKleine spoke on "The Significance of Dental Health in Children."

The afternoon session offered two excellent papers, followed by twenty-three table clinics.

"Face Growth and Face Value" was presented by W. M. Krogman, Ph.D., Associate Professor of Anatomy and Physical Anthropology of the University of Chicago.

"Modern Operative Procedures Used in Preventive and Restorative Dentistry for Children" was read by Dr. Drexell Boyd. Doctor Boyd supplemented his paper with motion pictures.

Twenty-three table clinics on various phases of Children's Dentistry occupied the remainder of the day.

ANNUAL REPORTS OF OFFICERS AND COMMITTEES OF THE A.S.P.D.C.

COMMITTEE ON BIBLIOGRAPHY
Joseph H. Kauffmann, *Chairman*

There were two parts to our endeavors. One was represented by the reviews on pedodontic periodical literature contained in the columns of the REVIEW. Since we feel that our official organ is rapidly gaining an eminent place in the annals of dentistry for children, this committee took pride in having a regular column amongst its contents.

The second project involved the activities of Doctors Burkhart, Casto, and Proctor, each of whom made a study of periodical literature for the period comprising June, 1937, to and including May, 1938, in order to collect a list of what constituted, in their respective personal opinions, the ten best articles in the field of pedodontia. We are indebted to these three committee members for their earnest application to the task assigned, and the results of their laborious work will be published in our REVIEW.

THE EDITOR'S REPORT
Samuel D. Harris

The REVIEW'S mailing list has now jumped close to 600 copies per regular issue and to 2,500 copies for the Graduation Number. Further, the publication was increased by eight pages, to 32 pages, twice in the course of the year. Despite the increases, costs have been carefully held down and are very likely below the conservative estimate originally forwarded to the Budget Committee.

REVIEW was invited this year by the A.A.D.E. to gather articles aimed toward the furtherance of May First Child Health Day. This was a splendid opportunity to join in a movement which is perhaps closer to this organization than to any other organization in dentistry, and Doctors Brauer, Dwyer, Mork, Kauffmann, Gibbin, Johnson, and Gurley were asked to join with the Editor in the movement. The articles which they submitted were mailed to the A.A.D.E. for national distribution and appeared in many periodicals in all sections of the country from New York to California.

Many letters have been received this year, both from members of the Society and from others in this country and abroad, commenting upon the increasing usefulness of your publication. Favorable comment was received on the Graduation Number of REVIEW and more

recently on the new department entitled Original Investigations which in its first appearance carried a resume of the opinions regarding dentistry for children received from a considerable number of the new graduates, and in its second listed the best articles on Pedodontics for 1937-1938 as selected by the A.S.P.D.C. Committee on Bibliography.

REVIEW readers have been kind in their commendation and in their readiness to offer suggestions. To this inspiration your publication owes its present admirable standing among dental publications. Your faith in its purpose and value has helped in accomplishing REVIEW'S present position of usefulness.

REPORT OF THE STATE AND NATIONAL BOARD OF DENTAL EXAMINERS COMMITTEE

Ralph L. Ireland, *Chairman*

The report of last year's Committee disclosed the fact that five Boards were in favor of asking questions in Children's Dentistry but were undecided as to their future policy (Utah, Georgia, Missouri, New Jersey, Indiana). The Committee during the past year has endeavored to find out what action these Boards have taken in this matter. Only two of the five Boards responded to inquiries: New Jersey, stating that their attitude remained unchanged in the matter; and Indiana, stating that a policy had not yet been formulated in this regard.

REPORT OF THE COMMITTEE ON SCHOOL DENTAL PROGRAMS FOR CHILDREN

J. M. Wisar, *Chairman*

With the funds allotted to the committee, reprints of the report containing the recommendations of the School Dental Programs Committee regarding administrative policies and basic operative procedures for dental service programs for children and increased facilities for dentist education and training for public health programs were distributed to representative persons throughout the United States. It is evident that the committee has initiated discussion of its recommendations.

The National Dental Inspection Chart has been accepted by the Bureau of Public Relations of the American Dental Association, and approximately two thousand copies have been purchased. Copies of the form have been printed in the Journal of the American Public Health Association, the Journal of School Health, the New Jersey State Dental Journal, the Bulletin of the Massachusetts School Dental Workers, and perhaps others of which the committee is not aware.

Many constructive suggestions have been received upon which to base further endeavors by the committee.

ANNUAL REPORT OF THE STATE UNITS AND MEMBERSHIP COMMITTEE

John C. Brauer, *Chairman*

The American Society for the Promotion of Dentistry for Children has been expanded to include two new State Units, Oregon and Illinois, during the past year. Better organized programs have been instituted by the various Units throughout the country, and positive indications are that seven more states will form Units of A.S.P.D.C. during the coming year: Minnesota, North and South Carolina, Florida, Alabama, Mississippi, and Iowa. Abstracted reports from the various State Units are:

Michigan: Headed by Dr. S. D. Harris, with Dr. Barnett Malbin as Vice-President and Dr. Floyd Arnold as Secretary, the Michigan Unit at present comprises 46 active and 24 associate members, between 50 and 75 percent of which attend each meeting. During the past year, the group had four meetings, at which one-half hour was devoted to "clinics setups" and an hour and a half was devoted to dinner and a short business meeting, which preceded the program. Each of the four programs lasted approximately an hour and was followed by a period of discussion and clinics before adjournment.

Missouri: Host to the annual A.S.P.D.C. meeting. Dr. Robert A. Harris, Jr., Secretary, writes that the Missouri Unit has had eight formal meetings this past year. He also makes this comment, "We of the Missouri Unit feel that we have profited much through our membership in the Society and look forward to another year of interesting and instructive programs such as we have just completed."

This Unit has a membership of 22, and its President is Dr. John Clayton, of Kansas City, with Vice-President, Dr. Thomas Thompson.

Georgia: Dr. Clyde Harling, Secretary, reports that the Georgia Unit met approximately once a month, at which time various phases of pedodontia were discussed. Practical clinical demonstrations on patients were also had at the DeLos L. Hill, Jr. Memorial Children's Clinic.

California: Dr. Edwin C. Randol, President; Dr. Pearl Hannah, Vice-President; and Dr. Charlotte Greenhood, Secretary. The latter writes that the Unit has had several dinner meetings, at which time speakers were invited to discuss pedodontia and related fields.

Nebraska: Dr. Wallace Webster, Secretary, writes that the fifth annual meeting of the Nebraska Unit was held on May 17, 1938, at Lincoln—85 attended.

Southern California: The Unit had two major meetings this past year, at which time Dr. Kenneth I. Lewis and Dr. George M. Hollenback were the principal speakers. The Unit now has 36 active members. This report was submitted by its Secretary, Dr. Virginia Poindexter Kurtz.

Oregon: The Oregon Unit has made outstanding progress during the past year, and it is regretted that their entire fine program cannot be repeated here. The President of this Unit is Dr. R. M. Erwin; the President-Elect, Dr. Franklin W. Hollister; and the Secretary, Dr. Grace Pulliam. Doctors Fixott, Faxon, Meany, DeCamp, Hurley, Morris, Price, Hull, and Ryan all have contributed this past year in the way of clinics and papers in the development of their program.

Ohio: Dr. Regina David writes that all is going smoothly in Ohio and that they had a luncheon during the state meeting last fall, at which Dr. Walter T. McFall was the guest speaker.

Illinois: This Unit was organized during the Chicago Mid-Winter meeting last February, and they had one formal meeting last year. The President is Dr. Elsie Gerlach; the Secretary Dr. George W. Teuscher.

New York: Dr. Guy W. Patterson writes that their annual meeting was held at Syracuse. Doctors Galbraith and Patterson gave clinics at this meeting. Dr. Waite Cotton was elected President; Dr. Theo Blutau, Vice-President, and Dr. George Davis, Secretary.

Toronto, Canada: Dr. Edmund A. Grant writes, "Our Unit of the A.S.P.D.C. had a meeting just before the summer holidays, and Dr. Glenn T. Mitton was elected President. It is our plan to have a well organized program this coming year."

The writer wishes to express his sincere appreciation for the help and co-operation received from the various officers of the State Units and members of the State Units and Membership Committee. I particularly commend the untiring work of our secretary, Dr. Ralph Ireland, who has with efficiency and dispatch done much to promote our objectives and aims.

COMMITTEE AIMS FOR 1939

Konrad Lux

It is indeed gratifying to report that up to the present time so many encouraging reports have been received from the men appointed by the president to serve as members of the State Units Committee. Their willingness to serve, accompanied by a report of their activities, gives promise for an increase in membership over that of last year.

The future progress in promoting Children's Dentistry rests in the hands of the dentists doing general practice in smaller cities and towns. Therefore, the A.S.P.D.C. should continue to inspire these men to equip themselves fully with the knowledge and means by which they can more fully cope with the problems that Children's Dentistry presents. We must make them realize that preventive dentistry has become the dominant idea of our whole professional procedure and that the results of its application will reduce the necessity for the service of repair and replacement which has been monopolizing our attention heretofore.

Remember that news from your state or local unit will always be appreciated, and the report of your activities printed on this page will

encourage other units, as well as create more interests among your own members, and the interchanging of ideas will promote further activity. Keeping in mind that this year will be a short one, all must work together to surpass last year's activities in a much shorter period of time.

MINNESOTA—The new unit being formed under the leadership of Dr. H. C. Wittich has held one meeting and elected Dr. George Moulton temporary secretary.

UTAH has formed a State Unit with twenty-five new members of the A.S.P.D.C. Officers of the new group are: Clifford Rudine, President; Wallace Calder, Vice-President; L. M. Ellsworth, Secretary-Treasurer; and Margaret Andrews, R. C. Dalgleish, and R. B. Petty, Directors.

NEBRASKA Unit will have its first meeting of the year, Saturday, April first. Dr. John C. Brauer, who was instrumental in organizing the Nebraska Unit, will be guest speaker. Dr. Walter McBride recently conducted six refresher courses in Children's Dentistry in Nebraska towns and discussed Operative Procedures, Child Management, and the Business Phase of Children's Dentistry.

SOUTHERN CALIFORNIA Unit of the A.S.P.D.C. has elected new officers: Elsie Schildwachter, President; Melvin Ralston, Vice-President; and Hugo Kulstad, Secretary and Treasurer.

From the Secretary

Ralph L. Ireland

During last year, 205 new members were added to the roster, bringing the total membership to 540. Two new State Units were formed, one in Oregon and one in Illinois, making fifteen active State Units. Two additional units have been formed since the first of the year (Utah, Minnesota) and twenty-four memberships from Massachusetts, sent in by Dr. Fred Rogers, Chief of the Dental Department of Forsyth, bring the total near 600.

Not only has interest in our Society increased, but the members of the A.S.P.D.C. are responsible for the increased interest being manifested in Children's Dentistry. This fact was very much in evidence during the A.D.A. meeting in St. Louis. Almost twice as much time was devoted to this branch of dentistry at this meeting as at previous A.D.A. gatherings. Twenty-eight dental colleges in the United States and Canada are now receiving the REVIEW OF DENTISTRY FOR CHILDREN on a subscription basis.

The Society is indebted to Dr. Otto W. Brandhorst, Chairman of the Local Arrangements Committee, for his untiring work in making possible this splendid meeting. In spite of his many other activities in connection with the A.D.A. meeting, Doctor Brandhorst has cooperated one hundred percent with the President and Secretary. The Secretary is highly appreciative of the splendid cooperation received from the officers, the executive council, the committees, the state unit officers, and the many members who have contributed so much in making possible the advancement made by the A.S.P.D.C. in 1938.

TECHNIQUES

A child ten years of age has a small interproximal cavity on the upper right first foundation molar (deciduous molar). Should this tooth be filled or extracted?

The above question presents itself frequently and is one which requires the consideration of several different factors before making a final diagnosis. The average child will have a fairly loose tooth at this age for the roots have resorbed and it is time for the first foundation molar (deciduous molar) to be exfoliated; however, this is not always the case. A child is not necessarily considered abnormal just because a foundation tooth is not loose at the average time of exfoliation.

In determining the procedure or diagnosis in these cases, the first question is whether the tooth is loose or firm. If the first foundation molar is loose, a filling certainly would not be indicated; however, if it is firm, a serious question arises. It is the writer's plan to check the firmness, absence, or presence of the remaining first foundation molars. If the other first premolars (bicuspids) are already erupted, the question is whether their respective predecessors were lost by resorption and exfoliation or by extraction. In either event (loss by exfoliation or by extraction) a roentgenogram of the upper right foundation molar will enable one to note the presence or absence, as well as the position, of the first premolar (bicuspid). Occasionally there may be normal physiological resorption of the foundation molar roots with the exception of one. If there is very little or no resorption of this one tooth and the remaining first foundation molar roots have resorbed normally, extraction would be indicated, providing the first premolar was present and in good position. A space retainer is suggested in this latter instance.

In some cases, however, one will find all of the first and second foundation molars firm at the age of ten years. Again, a roentgenogram will aid the operator in determining the presence or absence of the underlying teeth, as well as inform him of the approximate physiological age of the child. This latter factor (physiological age) is most important in making all of our diagnoses and prognoses. A child may be ten years old chronologically and yet be only six or seven years physiologically. One would certainly not advise extraction of the upper right first foundation molar at age ten if the physiological age of the child was six, seven, or eight. Just the opposite may be true in a child's mouth, for it is not uncommon to have a child aged seven or eight chronologically and be ten or eleven years old physiologically. A case history will also be a determining factor in the solution of the above question.

Every operator should know very well the tables of calcification, exfoliation, and eruption of the foundation and permanent teeth so that they may be utilized in making diagnoses in everyday practice. With the above factors in mind, a suitable and favorable conclusion can be reached in this and similar cases. —JOHN C. BRAUER.

INFILTRATION ANESTHESIA

N. H. Taylor
Detroit

Nevin (1) defines infiltration anesthesia as that division of local anesthesia in which we endeavor to anesthetize peripheral or terminal nerve filaments of a certain area by injecting in or around that area. Local anesthesia as defined by Mead (2) is a state of insensibility of a local circumscribed area or a loss of sensation to a particular area, the patient remaining conscious.

Armamentarium used for the production of local anesthesia is of various types. To be useful and practical, the armamentarium must be complete. It must not be cumbersome, impede progress, or slow up operation in any way. All armamentarium must be easily sterilizable. For various reasons, prominent authors prefer different types of equipment (1-7).

Infiltration anesthesia may be produced by several methods, the supraperiosteal and subperiosteal being the most important ones. In the supraperiosteal method, the solution is injected above the periosteum, while with the subperiosteal method the solution is deposited beneath the periosteum. In both cases the solution is absorbed through the bony structure. The technique for the two methods as given by Mead (2) is as follows: For the supraperiosteal injection, the site of puncture is at the muco-buccal fold, at a point nearest the apical foramen of the tooth. A few drops of solution are injected just beneath the mucous membrane before the needle is advanced. About 1½ cc. of two per cent solution is required to anesthetize the tooth for pulp removal.

The site of puncture for the subperiosteal method is a point in the mucosa midway between the gingival margin and the apex of the root. The needle is advanced beneath the periosteum toward the apex. The solution is deposited below the periosteum at the apex. By this method of infiltration, the solution is more confined and less of it required.

Nevin (1) gives a more detailed description of subperiosteal technique. The gum tissue is first sterilized with iodine. Using the pen-grip hold, insert the needle at a point between the gum margin and the root apex. The needle is entered at right angles to the alveolar plate. After forcing through the periosteum, a few drops of solution are deposited. The needle is then turned parallel to the alveolar plate and advanced toward the apex beneath the periosteum—about 1⅓ cc. of solution is deposited. The subperiosteal method Nevin (1) is not the one of choice. Excessive pressure on the syringe is required to obtain anesthesia. The periosteum is torn from the bone and results in more after-pain. It is more painful, due to the fact that the periosteum is more sensitive than the gum tissue.

The amount of solution required to produce profound anesthesia is discussed by many of the writers. Mead and Nevin have been mentioned before. Puterbaugh (7) obtains excellent results by using 1 cc. of solution for infiltration of the upper teeth. Sweet (8) states that it

is never necessary to use any more than 2 cc. of procaine for all operative procedures on children. Brown (6) in his discussion of infiltration anesthesia for deciduous teeth uses from ½ to not over 1 cc. of solution.

The use of infiltration anesthesia in children's dentistry has been discussed to some extent in the literature. McBride (9) states that infiltration anesthesia is favorable to use in children's work for extractions. It is only indicated for older children (over nine or ten years). Hagan (10) says that a general anesthetic is indicated for children under five, as their actions and attitudes at this age are purely instinctive and emotional. They cannot distinguish any unusual feeling from pain. Physical condition and temperament are other factors which determine whether or not a local anesthetic is indicated in children.

As for the use of local anesthesia for cavity preparation and other operative procedures, I find little mention of it in the literature. Few men advise it routinely for all cavity preparation. They confine its use to simple extractions and for occasional large or sensitive cavity preparations.

rations. Puterbaugh (7) says, "If skillfully administered, local anesthesia is the greatest single aid that has yet been offered for the promotion of correct cavity preparation."

Sweet states that there should be no hesitancy in the use of local anesthetics regardless of the age of the child. However, he does not mention the use of local anesthesia for cavity preparation. Brown feels that infiltration anesthesia is very satisfactory for cavity preparation in children's work. In an editorial found in the May, 1938, issue of the Journal of the American Dental Association, the use of local anesthesia for cavity preparation is criticized. The editorial presents the argument that too many healthy pulps are lost following cavity preparation when anesthesia is used and that the prevalent use of procaine-epinephrine may be an element of actual danger to the heart, causing marked rise in blood pressure and dangerous toxic reactions.

Infiltration anesthesia is preferred over general anesthesia in some cases. It is better where considerable time is required for the operation, thus giving the operator more time. It is also better where a bloodless field is required to carry out the operation quickly and with the least amount of trauma. With local anesthesia, the patient is conscious and can cooperate with the operator. Infiltration anesthesia is more desirable than conduction where the field of operation is small or where only one or two teeth are to be operated on.

There are several contra indications for infiltration anesthesia Mead (2). It is not desirable where injection into inflamed or infected areas cannot be avoided. It is contra indicated where a great number of punctures are required, such as when many teeth are to be anesthetized. Again, it is not indicated where a large amount of solution is necessary, especially if the patient is in poor physical condition. Patients suffering with extreme anemia or epilepsy should not be subjected to either conduction or infiltration anesthesia.

Precautions with regard to the use of infiltration anesthesia are of importance. First, when injecting the solution, care must be taken not to inject too rapidly. A good rule to follow is to take about one minute to inject 2 cc. of solution. Second, avoid injection into a blood vessel. The best precaution against doing this is to withdraw slightly the plunger of the syringe and see if any blood is drawn into it. It is interesting to note the difference in toxicity when the anesthetic solution enters the blood stream. The poisonous effect of the drug depends upon its concentration in the blood stream. Experiments on animals show that the lethal dose in a subcutaneous injection is four times that of an arterial injection and 16 times that of an intravenous injection. An intravenous injection is more toxic than an arterial because the venous blood flows toward the heart while the arterial blood flows away from the heart. When the solution is injected subcutaneously, the toxic effect is quickly absorbed by the tissue cells and is gradually liberated into the circulation without any toxic disturbances. A third precaution in using any form of local anesthetic technique is to have the patient in a comfortable semi-reclining position with the chair at an angle of about 45 degrees. This lessens the strain on the heart, thereby decreasing the chances of an unfavorable reaction.

The question of faulty technique is of importance and has its place in any discussion on local anesthesia. The problem of broken needles has been often referred to. One of the most important precautions against needle breakage is not to insert the needle up to the hub. In most cases, breakage occurs at this point. There should be no resistance offered when injecting the solution. Care must be taken not to bend or force the needle. A long enough needle should be used so that it will not be necessary to insert it to the hub. Another precaution is to discard needles often, even before they show signs of wear and tear.

Hematomas are another result of faulty technique. They occur when the needle is injected into blood vessels, most often into the pterygoid plexus. The result is a discoloration and swelling.

Infection following injection is usually the result of poor technique. The importance of asepsis cannot be over-emphasized. The site of injection must be carefully sterilized with tincture of iodine. The needle must not contact anything before injection, such as the lip, cheek, or tongue. Injection into an inflamed area also invites infection. The infection which is already present is carried to healthy tissue. Infection may result by injection of a second area with the remainder of the solution in the syringe. Refilling the syringe after injection with the same needle contaminates the remainder of the solution and invites infection. Septic instrumentation may result in infection. All instruments, of course, must be thoroughly sterilized before using.

Preparation of the patient for any operation requires complete cooperation with the operator. The operator must respect the feelings of the patient and put himself in the patient's place.

(References, Page 22)

What Price Deciduous Teeth

John E. Gurley,
San Francisco, California

CHAPTER IV

The Conversion of Parents and the Control of Children

1. Conversion of Parents.

Conversion is a difficult task, regardless of the field. It involves conflict, in the mind of the one about to be converted, between two principles, "What I want" and "What I ought," with the former often predominating. Mothers have thought in terms of temporary teeth, and if that period be cut short, what difference? Neither did the dentist see the whole picture. He really had to surmise, guess at the ill results of premature loss of deciduous teeth, and presume that he might prevent some further trouble. He knew, of course, that "A stitch in time saves nine," and that perhaps this might be applicable to the teeth of a child. He had been taught that "A clean tooth never decays" and believed he could clean them and keep them clean. Children were not brought to the office except under duress of an aching tooth, and then only to have it out.

I adopted the policy of refusing to extract unless my own understanding so indicated. The result was that I treated and filled many teeth for the fee of an extraction or whatever the parent would give me, oftentimes nothing. Sometimes this latter fee was forced upon me, for I made diligent search among parents to find children for whom I could work. I was glad to do it, however, if only for the experience, leaving compensation to a later period in my life. As Topsy "just growed," so did practice among children, and today we see it occupying a prominent place in the dental field; tomorrow, my prediction is, we will find recognition of the inestimable value of the care of children's teeth, to the child and the community of children, grown into adulthood. You will also see no little change in dental practice as compared with today. The conversion of parents is now complete.

2. Control of Children.

Dentists had had no training in psychology years ago, nor was that science very fully developed. We had to depend altogether on our common regard or, to put it succinctly, our love for "little children." Strangely enough, the definition of the science of psychology as taught today is: "Psychology is that science which treats of human relationship; through it we learn how to live together and to deal with each other. The first element to a full understanding of its principles and of carrying these into practice is that we love each other." This is not an exact definition, but it does cover in detail.

You can fool an adult; you can fool yourself; but you cannot fool a child! A mother once said to me, "You have to deceive my child in order to handle her."

My experience leads me to state that the first requirement in dealing with children is to manifest an honest regard for children and for

childhood—you become a friend and they will trust you. Be honest and frank. They will stand pain if necessary and be all but glad.

The best way to cause dislike or distrust on the part of a child is to fix up a children's office with childish equipment, chairs, pictures, etc. The very young child does not miss it if it isn't there, and the ten year old will feel more at home in accustomed surroundings. Picture a rough and ready boy, or even a girl, interested in things people do—sports, etc., coming into a doll house. Besides, you cannot use "kid stuff" for an adult if needed, while the opposite is possible.

One thing more—don't try to bring the child to your level, but above all, don't take yourself to his. You can make yourself a fool in his mind and you are the loser. Find a common level between you. What is that level? It lies within the scope of his understanding. Learn his grade in school or know it from his age. What do you remember of your third grade work? Present it and discuss it. You'll marvel at his pleasure in knowing that you know it too.

Occasionally discipline is necessary. Different methods may be applicable, both with different children and by different dentists. Usually, however, only a word is all that is required, provided you have the child's respect. This you must get before beginning work.

I believe that there is one point above all others in dealing with children. We are treating the child primarily and the teeth secondarily, although actually it appears to be the opposite. A child said to me one time, "My tooth is me, ain't it?" To which I replied, "Yes, and that is why I spoke to you as I did." After that we had no more difficulty. We are treating children.

Infiltration Anesthesia

(Continued from Page 20)

References

1. Nevin, M. and Puterbaugh, P. G., Conduction, Infiltration, and General Anesthesia in Dentistry. Dental Items of Interest Publishing Company, Brooklyn, 1927.
2. Mead, S. V., Anesthesia in Dental Surgery. The C. V. Mosby Company, St. Louis, 1935.
3. Martin, M., The Application of Dentistry for Children. J.A.D.A. 24: 1821, 1937.
4. Arnold, J. P., Local Anesthesia for the General Practitioner. J.A.D.A. 18: 1412, 1931.
5. Blum, T., Resume of Local Anesthesia in Dentistry. J.A.D.A. 21: 856, 1934.
6. Brown, S., Infiltration Anesthesia for Deciduous Teeth. J. Mich. S. Dent. Soc. 20: 295, 1938.
7. Puterbaugh, P. G., Administration of Local Anesthetics in Dentistry. J.A.D.A. 23: 241, 1936.
8. Sweet, C. A., Child Management Through Pain Alleviation. J.A.D.A. 25: 1447, 1938.
9. McBride, W. C., Juvenile Dentistry. Lee and Febiger Publishing Company, Philadelphia, 1937.
10. Hagan, C. W., Local Anesthesia As Applied to the Child. J.A.D.A. 21: 99, 1934.

DENTAL HEALTH EDUCATION

M. L. McConnell
Gladwin, Michigan

A search of the literature reveals several definitions of Dental Health Education. Salzmann (1) is of the opinion that it is the dissemination of dental hygiene information with the idea of establishing habits of health with respect to the teeth and oral cavity, and by this means increasing general health. Wisan (2) believes that it is the sum of all experiences which favorably affect habits, attitudes, and knowledge relating to the dental health of individuals and of communities, while Turner (3) states that health education in general means a program for the training and instruction of pupils leading to the development of right attitudes and habits as well as sound knowledge in the field of health.

Turner (3) gives a brief history of the chronological development of health education: The French government in 1883 first concerned itself with the sanitary conditions of school buildings and the health of children therein. Germany placed physicians in public schools in 1868 and 1873. It was in Brussels, Belgium, however, that the first medical inspection system was inaugurated, and it was not until 1894 that any system of medical inspection was started in the United States. In 1898, in London and 1902, in New York, the first school nursing programs started. Finally, in 1903, the first school dentist was appointed in Reading, Pennsylvania. Later, Dr. Alfred Fones, the father of the dental hygiene movement, introduced dental hygienists into the schools of Bridgeport, Connecticut.

Wisan (2) believes the general and specific aims of Dental Health Education can be accomplished by official agencies which will motivate health professions, health and welfare organizations, and individuals to participate in the dental program. These agencies would also have the advantage of the collaboration of health and dental societies in the distribution of health education material. Dental societies will produce the leadership which will make its first objective the appointment of directors of dental hygiene throughout the state. The role of the dental society will also bring about better informed dentists in public health and health education techniques. This will also serve to prevent persons with unscientific ideas from misguiding educators.

The private dentist can help immensely in the office by giving dental health information to his patients from authorative sources and not from commercial material. This would include giving the patient information on diet, oral hygiene, and an explanation of correct operative procedures which will be done in the mouth. He would not forget the emotional side of the educational picture which in the past has placed too great a value on knowledge and too little on guidance for dental health practices.

In the home lies the crux of the dental health problem. The home has the first opportunity of conditioning the child to dental health practices. It would then be reasonable that the dentist and the hygienist

should be included in future adult education programs. Quinby (4) outlines a general plan for dental health service which is made up of three parts: Nutrition, occlusion, and hygiene. Each part has an educational and practical subdivision. He believes there are infinite possibilities for education of the public by health workers, teachers, and social workers in daily association with the public. Through their contacts, they could produce a closely knitted relation between boards of health, public health nursing associations, medical societies, American Red Cross, and hospital social workers. Educational work would be carried through public campaigns, lectures, motion pictures, newspapers, and exhibits. All branches of the healing art must cooperate and the program must be simple, otherwise the issues become too involved. Distribution of information about any harmful habit such as finger sucking or mouth breathing should be done on the educational side of the second division. The educational side of the hygiene division would be in evidence through instruction in the office and the imparting of home measures to be applied, such as right kind of tooth brushes, mouth cleansers, paste, powders, and mouth washes.

Hilleboe (5) believes that we must re-organize our principles of health education. There are two objectives to be desired in health education: First, insuring in school life through health supervision the essential protection of child growth and development; Second, providing through school channels educational guidance which will help the child develop behavior essential to daily health living in the home, school, and community and to assist him to become intelligently self-directive in matters of healthful living. He believes that the realization of these objectives is a tremendous task. Certain underlying principles and methods in health education should be noted, such as teacher example, habitual practice, favorable attitudes, satisfaction from repeated practice, habits and attitudes established as separate objectives, life experiences as teaching situations, wholesome mental reactions and a stimulated desire to know more from the predominant interest of the pupil and his viewpoint, positive rather than negative, practical experiences through school situations and experiences, interest, and correlation with other subjects. The development of practical methods and devices to meet these principles will do much to increase the effectiveness of the health education program. Methods and devices should be used instead of abstract ideas.

References

1. Salzmann, J. A., "Principles and Practice of Public Health Dentistry," The Stratford Company, Boston, 1937.
2. Wisan, J. M., "Education of the School Child for Dental Health," J.A.D.A., 23: 1978, 1936.
3. Turner, C. E., "Principles of Health Education," D. C. Heath and Company, New York, 1932.
4. Quinby, E. M., "A General Plan for Dental Health Service," Internat. J. Orthodontia, 21: 56, 1935.
5. Hilleboe, G. L., "How Dental Health May Be Taught in the Public Schools," Internat. J. Orthodontia, 20: 63, 1934.